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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,776	07/31/2003	Yoshitsugu Goto	241075US0	7889

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EXAMINER

ALHJA, SAIF A

ART UNIT PAPER NUMBER

2128

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/630,776	GOTO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Saif A. Alhija	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/31/03</u> . | 6) <input type="checkbox"/> Other: _____  |

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**DETAILED ACTION**

1. Claims 1-8 have been presented for examination.

**PRIORITY**

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

**Information Disclosure Statement**

3. The information disclosure statement (IDS) submitted on **31 July 2003** is in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner has considered the IDS as to the merits.

**Claim Objections**

4. **Claims 7 and 8 are objected** to for the following reasons. They appear to be independent claims written in dependent form. The claims should be re-written to be in independent form.

**Claims 7 and 8 are objected** to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 7 and 8 do not further limit the method steps of Claim 1. Claims 7 and 8 mix statutory classes with Claim 1.

**Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 1-8 are rejected** under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

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i) Claims 1-8 recite a method of calculating, defining, extracting, and identifying data. As such, the claims do not produce a useful, concrete, and tangible result. Therefore the claims are rendered non-statutory.

ii) Claims 7 and 8 mix statutory classes. The method of Claim 1 is characterized in Claims 7 and 8 to be a recording medium and a computer program.

iii) Claims 7 and 8 recite a recording medium and a computer program. It should be noted that code (i.e., a computer software program) does not do anything per se. Instead, it is the code stored on a computer that, *when executed*, instructs the computer to perform various functions. The following claim is a generic example of a proper computer program product claim;

A computer program product embodied on a computer-readable medium and comprising code that, when executed, causes a computer to perform the following:

Function A  
Function B  
Function C, etc...

Appropriate correction is required.

**Claim Rejections - 35 USC § 112**

**The following is a quotation of the second paragraph of 35 U.S.C. 112:**

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**6. Claims 1-8 are rejected** under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 2 recite the phrase “high degree”. It is unclear what value a high degree is given and therefore the claim is rendered vague and indefinite.

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The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. Appropriate correction is required.

### **Claim Interpretation**

7. As stated in MPEP Section 2143.03. A claim limitation which is considered indefinite cannot be disregarded. If a claim is subject to more than one interpretation, at least one of which would render the claim unpatentable over the prior art, the examiner should reject the claim as indefinite under 35 U.S.C. 112, second paragraph (see MPEP § 706.03(d)) and should reject the claim over the prior art based on the interpretation of the claim that renders the prior art applicable. *Ex parte Ionescu*, 222 USPQ 537 (Bd. Pat. App. & Inter. 1984) (Claims on appeal were rejected on indefiniteness grounds only; the rejection was reversed and the case remanded to the examiner for consideration of pertinent prior art.). Compare *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970) (if no reasonably definite meaning can be ascribed to certain claim language, the claim is indefinite, not obvious) and *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962) (it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions).

Claim 2 is vague and indefinite and rises to the level of *In re Steele* however in the interests of compact prosecution the claim will be interpreted to be an iterative process for correlating and matching calculated data with experimental data.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 1-8 are rejected** under 35 U.S.C. 102(b) as being clearly anticipated by **Stubbs**

**“Apparatus and Method for Damage Detection”, U.S. Patent No. 5,327,358** hereafter referred to as **Stubbs**.

**Regarding Claim 1:**

**Stubbs discloses** A method of identifying a boundary condition between components of an object of analysis, the method comprising the steps of:

calculating natural frequencies or resonance frequencies of finite-element method models and calculated mode vectors by using the finite-element method models for analysis which include an object of analysis including a plurality of components and a plurality of elements which are positioned between the components of the object of analysis and indicate a boundary condition between the components;

**(Column 5, Lines 30-35. Column 9, Lines 48-63. Column 35, Lines 11-34. Figures 5 and 7)**

extracting a calculated mode vector having a high degree of correlation for an experimental mode vector obtained in an experiment; **(Column 5, Lines 30-35. Column 9, Lines 48-63. Column 35, Lines 11-34. Figures 5 and 7)**

and identifying the boundary condition of the elements based on the extracted calculated mode vector and the natural frequency or the resonance frequency corresponding to the extracted calculated mode vector. **(Column 5, Lines 30-35. Column 9, Lines 48-63. Column 35, Lines 11-34. Figures 5 and 7)**

**Regarding Claim 2:**

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**Stubbs discloses** A method of identifying a boundary condition between components of an object of analysis according to claim 1, wherein the step of extracting the calculated mode vector comprising the steps of: determining a degree of correlation at least one time by residual degrees of freedom when the degrees of freedom giving the large degree of correlation during elimination from arithmetic operation are eliminated n numbers at a time; and extracting the calculated mode vector having the large number of residual degrees of freedom when the degree of correlation exceeds a threshold as the calculated mode vector having the high degree of correlation for the experimental mode vector. (See Claim Interpretation. Column 15, Line 49 – Column 16, Line 10. Column 35, Lines 11-34.)

**Regarding Claim 3:**

**Stubbs discloses** A method of identifying a boundary condition between components of an object of analysis according to claim 1, wherein the step of calculating natural frequencies or resonance frequencies and calculated mode vectors comprising the steps of: defining a plurality of conditions for each of the elements and a plurality of levels for each of the plurality of conditions; and calculating the natural frequencies or the resonance frequencies of the finite-element method models and the calculated mode vectors by adopting an experimental design. (Column 22, Lines 18-24, 57-63)

**Regarding Claim 4:**

**Stubbs discloses** A method of identifying a boundary condition between components of an object of analysis according to claim 1, wherein a mode reducing model of a single component in which the mode vector up to a necessary frequency band is adopted is used as the component of the finite-element method model. (Column 2, Lines 40-45, 51- Column 3, Line 5. Column 22, Lines 18-24, 57-63)

**Regarding Claim 5:**

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**Stubbs discloses** A method of identifying a boundary condition between components of an object of analysis according to claim 1, wherein the step of identifying the boundary condition comprising the steps of: performing an arithmetic operation for an evaluation value indicating an error between the experiment and the calculation for each of a plurality of conditions based on the extracted calculated mode vector and the natural frequency or the resonance frequency corresponding to the extracted calculated mode vector; and identifying the boundary condition of the elements so that the evaluation value is minimized. (Column 2, Lines 40-45, 51- Column 3, Line 5)

**Regarding Claim 6:**

**Stubbs discloses** A method of identifying a boundary condition between components of an object of analysis according to claim 1, wherein the step of identifying the boundary condition comprising the steps of: identifying the boundary condition between the components by using a spring between the components as elements contained in the finite-element method models to identify a spring constant of the spring between the components. (Column 15, Line 49 – Column 16, Line 10)

**Regarding Claim 7:**

**Stubbs discloses** A recording medium, wherein a control program for executing a method of identifying a boundary condition between components of an object of analysis according to claim 1 with a computer is recorded. (See Claim 1)

**Regarding Claim 8:**

**Stubbs discloses** A computer program for executing a method of identifying a boundary condition between components of an object of analysis according to claim 1. (See Claim 1)



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**Conclusion**

7. All Claims are rejected.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saif A. Alhija whose telephone number is (571) 272-8635. The examiner can normally be reached on M-F, 11:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

March 3, 2006

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